REMARKS

Applicant has amended the drawings to add a new figure that shows the two augers. Applicant has also amended the claims to more accurately define the present invention. Claims 54, and 73-75 have been cancelled and new claim 77-80 have been added.

Applicant's claims are direct to a method of manipulating and managing the motion and currents of a liquid cryogen utilized in the freezing or solidifying of individually small volumes of a liquid or units. The method is characterized by a series of steps. These steps include transporting the liquid cryogen in a first direction upwardly from a reservoir to a transition point where the cryogen's direction of flow changes to a second direction. After the cryogen is brought by the location where the change of direction takes place the cryogen initially enters a single raceway. The speed of travel and volume of cryogen the this raceway are managed from the transition point to reduce both the gasification of the cryogen and any back eddies created in the flow of the cryogen caused by the change of direction. After the direction of flow has been changed to a second direction a liquid to be frozen by the cryogen is introduced while the cryogen is traveling in the second direction. The liquid is introduced via one or more orifices at a distance remote from the cryogen, such that the small volumes of the liquid form into frozen units. After the liquid is added to the cryogen, the flow of the cryogen is adjusted by a control means located in said raceway. In another embodiment, after the liquid is dropped into the cryogen, the liquid solidifies and travels along the raceway where it passes to a conveyor belt screen having spacing such that cryogen flows through the screen of said belt and the frozen units do not.

The examiner has relied on United States Patent No. 4,655,047 to Temple and rejected the claims as being anticipated by Temple. Initially, it should be noted that

Temple states that the boiling of the cryogen occurs downstream not at the point where the small volume of liquid enters the cryogen. This problem of boiling down stream is eliminated through the use of a control means located after the liquid enters the cryogen. There is no teaching or suggestion of a control means in this location in Temple.

Claims 77-80 are also allowable in their own right. Temple does not teach or suggest a control means located in the raceway after the introduction of said liquid to the cryogen that is a dam that increases the depth of the cryogen. Temple also does not teach or suggest a baffle similarly located to aid in the direction of flow of the cryogen. Claim 79 is also not taught or suggested as there is no screen that aids in the control of the internal currents of the cryogen located after the liquid to be solidified has been added to the cryogen. Claim 80 is also patentable over the Temple patent. The Temple patent does not teach or suggest a mesh conveyor that permits cryogen to pass through leaving the solid product. The wire mesh belt allows for extracting very large quantities of frozen product with the ability to allow large volumes of Cryogen to pass through it during the production processs.

Claims 33, 34, 36-44, 47-52, 55-64, 68-70 have also been rejected as being unpatentable over Gibson, United States Patent No. 4,479,363. These claims have been amended to make it clear that the cryogen passes to a single raceway not a plurality of different troughs as taught be Gibson. Also Gibson has buckets of cryogen. There is no continuous flow of cryogen.

The Gibson patent does not teach or suggest Applicant's invention. More specifically, Gibson has a reservoir 18 with a baffle 20 therein. See Figure 2 and 6. There is no change in the direction of flow of cryogen after it leaves the reservoir until the droplets of liquid are added to the cryogen. In applicant's claims however, there is a different process.

Applicant transports liquid cryogen that is in a reservoir from the reservoir in a first direction from the reservoir to a transition point where the direction of flow of the cryogen changes to a second direction. Applicant has found that this arrangement provides significant benefits in the production of frozen units. Applicant's arrangement can be further improved by the use of a means for reducing the internal currents of the cryogen traveling in said second direction. This means is positioned prior to the introduction of the liquid to be frozen. This arrangement is not taught or suggested by the Gibson patent. The Gibson patent also does not teach or suggest the use of multiple augers as is provided in claim 76.

Claim 35 has been rejected as being obvious in view of Temple when combined with Jones. The Jones patent does not overcome the deficiencies of the Temple patent discussed above and accordingly, the rejection should be withdrawn. Claim 45 was rejected as being obvious in view of Gibson when combined with Milankov. The Jones patent does not overcome the deficiencies of the Milankov patent discussed above and accordingly, the rejection should be withdrawn.

The Examiner also relies on United States Patent No. 3,228,838 to Rinfret combined with Gibson to reject claim 46. Rinfret has a reservoir 10 where the cryogen flows out of. The flow from the reservoir is in generally a downward direction and there is no change from the downward direction prior to the addition of the liquid to be frozen. Accordingly, this patent does not suggest Applicant's invention or overcome the deficiencies of the Gibson patent. Rinfret also does not teach or suggest a means for reducing the internal currents of the cryogen traveling in the second direction. The Rinfret patent also does not teach or suggest the use of dual augers as is provided in claim 76.

Claims 53, 54 and 65-67 have been rejected as being obvious in view of Gibson and Temple. As noted above these patents do not anticipate applicant's amended claims and in addition, they do not suggest the features in the amended claims discussed above either taken alone or combined with other references. The same arguments apply to the rejection of claims 71, 72, 75, and 76

CONCLUSION

For the foregoing reasons Applicant requests reconsideration and allowance of the claims of the application.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that the foregoing Response was mailed by first class mail, postage prepaid, in an envelope addressed to the Hon. Commissioner of Patents, P.O. Box 1450 Alexandria, VA 22313, this 14th day of November, 2005.